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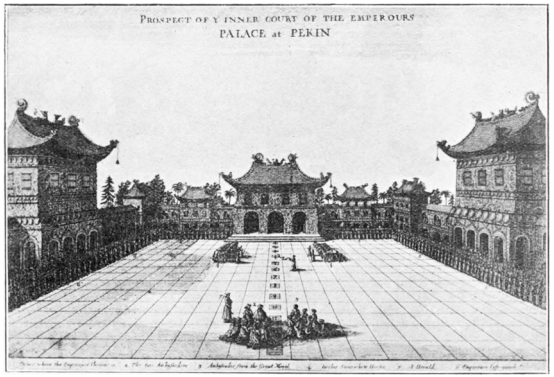
The amazing comeback of the street light

Dr Jon Lewis

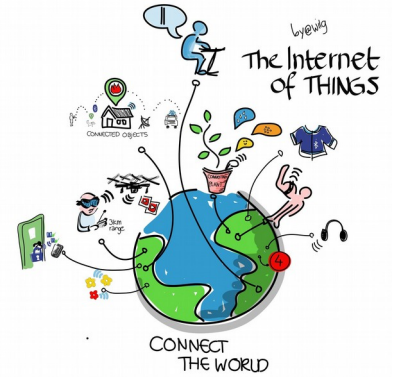
June 2015

A truncated history of the street light



- 500BC – bamboo used to pipe gas from volcanoes to provide fuel for lights in Peking

- 2015 – Telensa's street lighting control system starts rolling out in Shanghai – used to power a wide set of services for the Internet of Things



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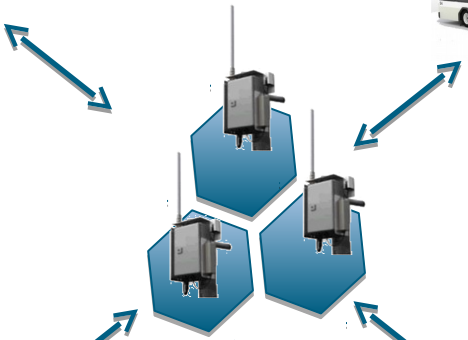
aptos – Low Power, Wide Area network for “Things”

Aptos provides a single network for smart cities and the Internet of Things

Private contractor auditing

Public transport information systems

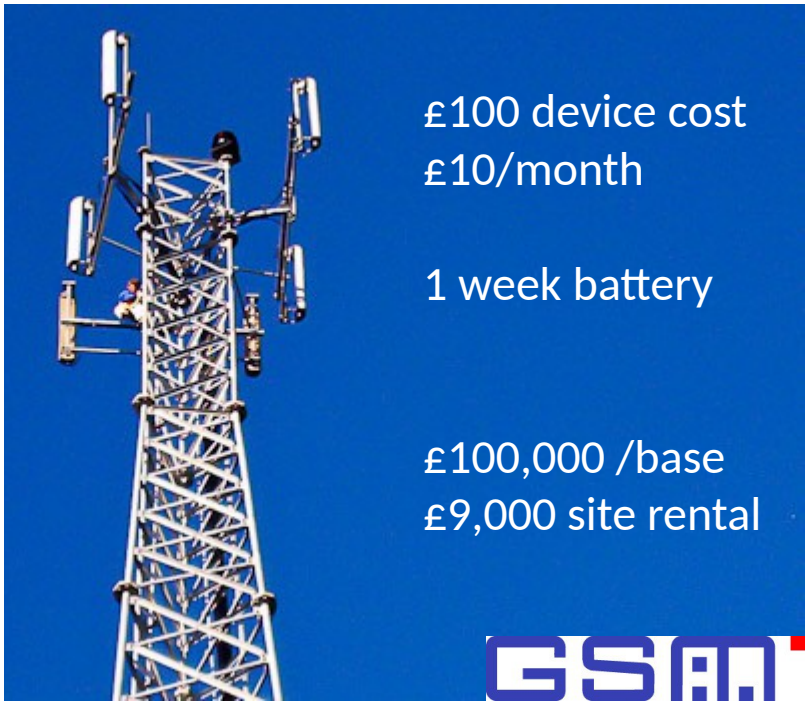


Smart street parking

Low cost radio network

Central street light management

Why not use cellular?



£100 device cost
£10/month

1 week battery

£100,000 /base
£9,000 site rental

£10 device cost
£2/year

10 year battery

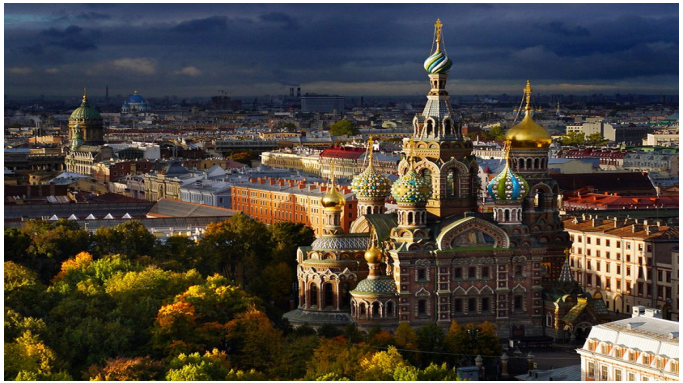
£1,000 /base
£50 site costs

Putting that into perspective

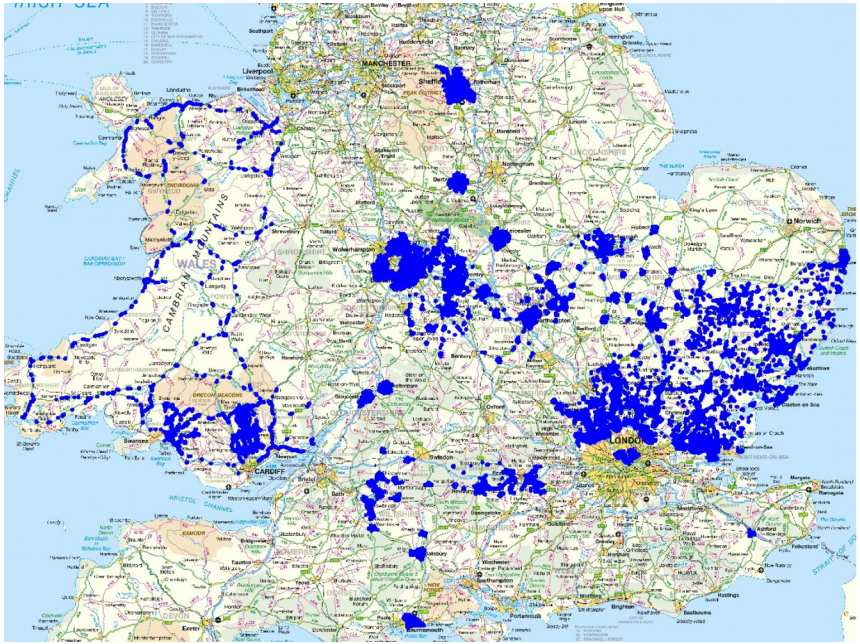
- To cover Birmingham we installed 33 basestation in 3 weeks at a cost of less than £100,000

- A typical residential street light incurs £32 per year in energy costs

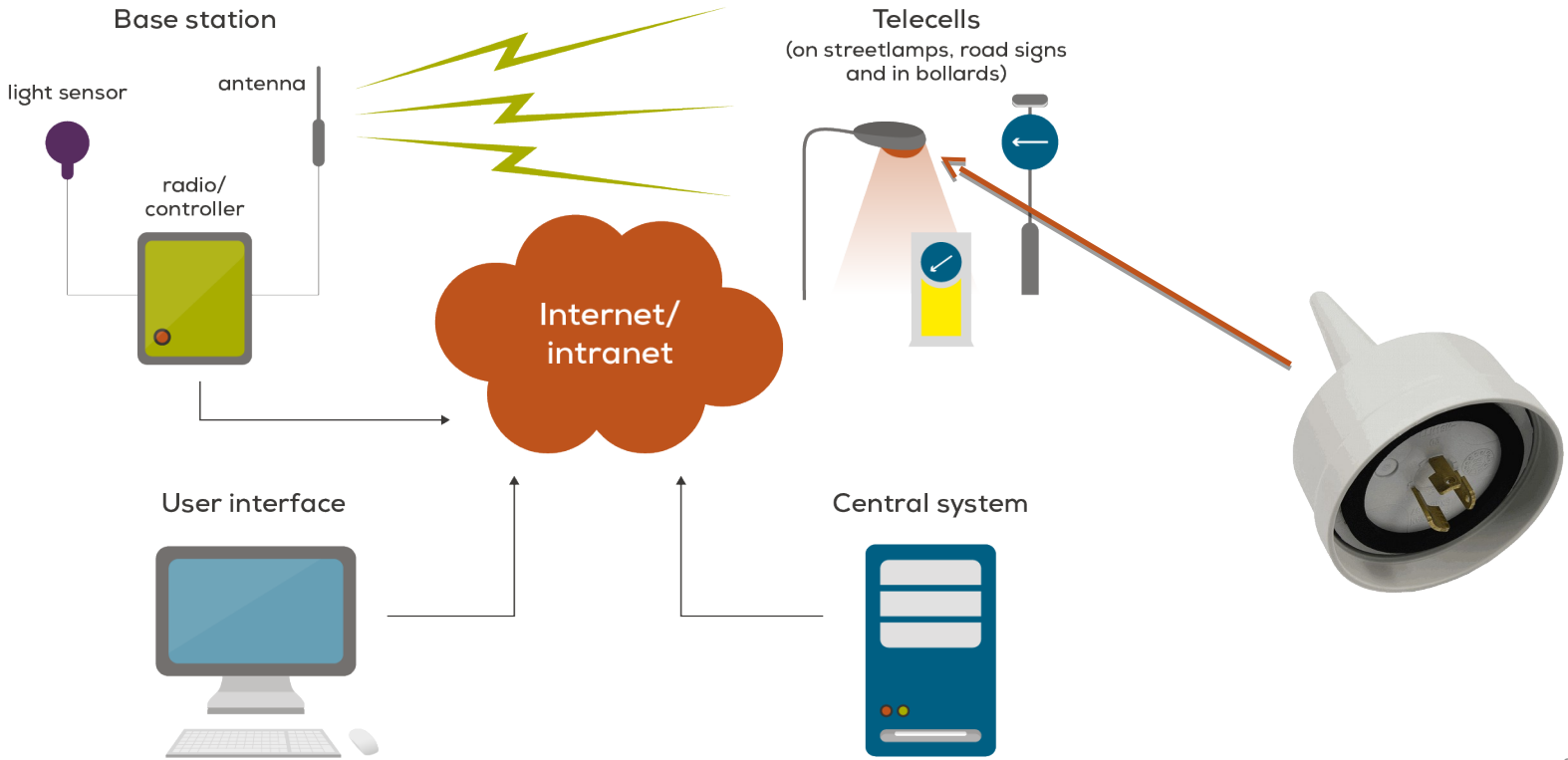
Some of Telensa's more exotic networks



UK network – the not so exotic



PLANET – Lighting Central Management System



Green Investment Bank

STREETLIGHTING IN THE UK

7.4m number of streetlights in the UK. Less than 10% are currently low energy LEDs.

100,000 number of hours of light provided by a LED. A standard streetlight only provides 15,000 hours.

30% of light from a standard streetlight is wasted as it is dispersed upwards.

£300m

annual UK spend on energy for streetlighting; rising in line with escalating energy prices.

£200m annual energy cost saving by switching to LED streetlighting; paying off the investment in 10 years.

30% of a Local Authority's energy bill is for streetlighting.

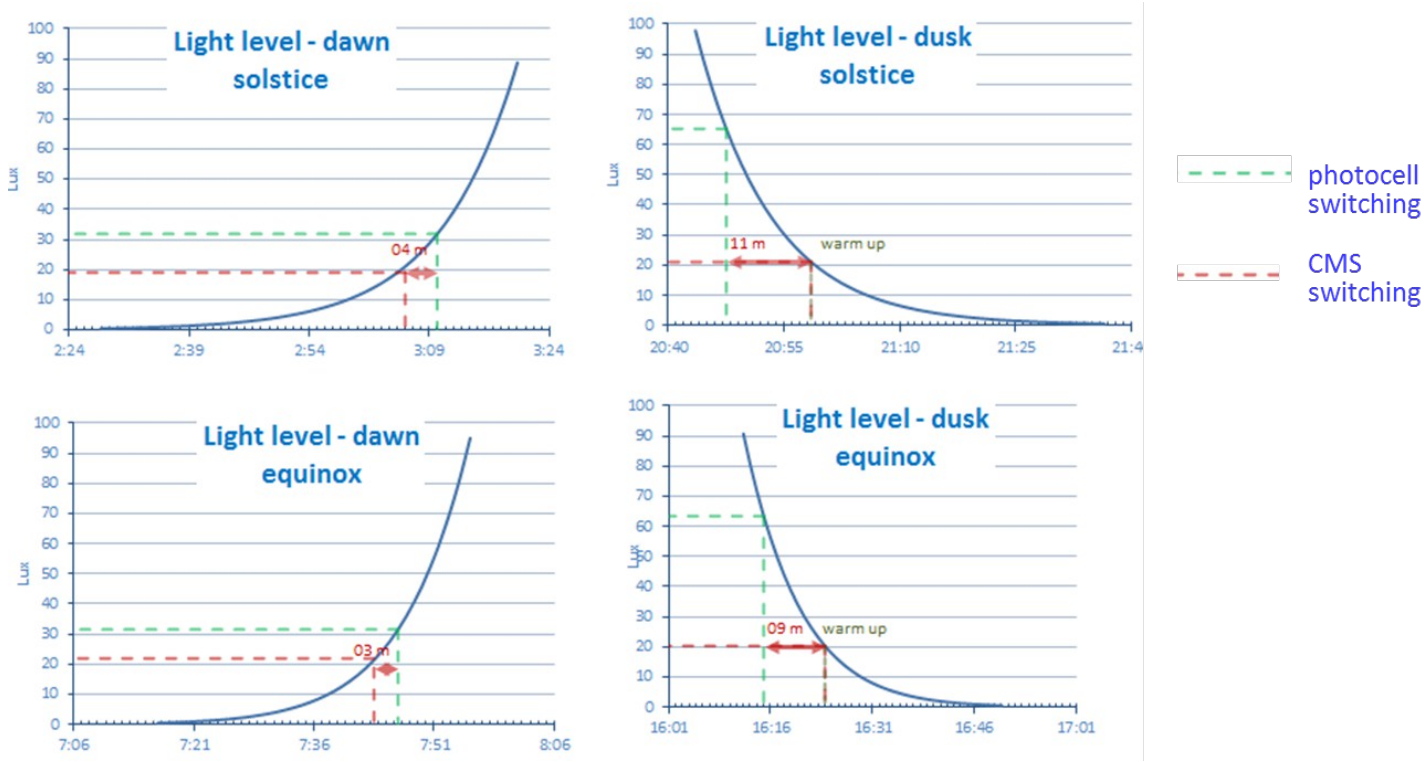
50 to 80% of energy costs could be saved by switching to low energy streetlighting.

Saving greenhouse gas emissions (CO_2) equivalent to taking

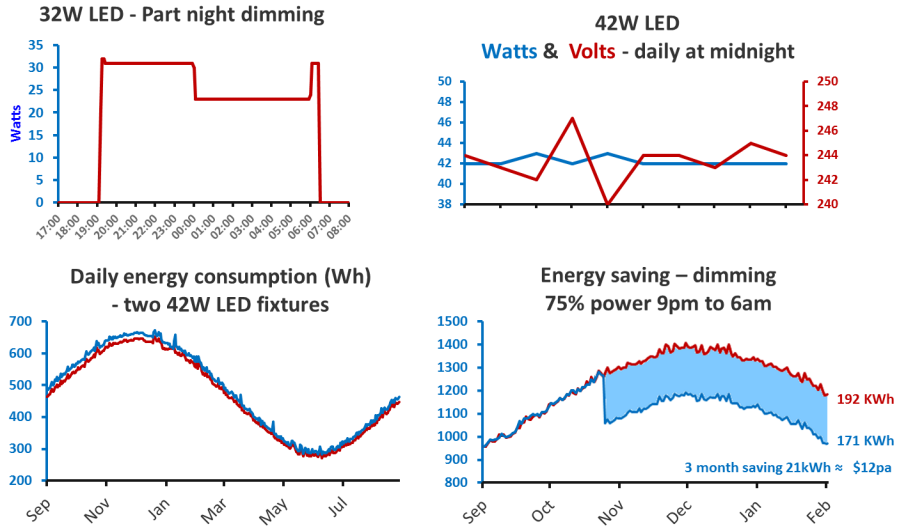
330,000

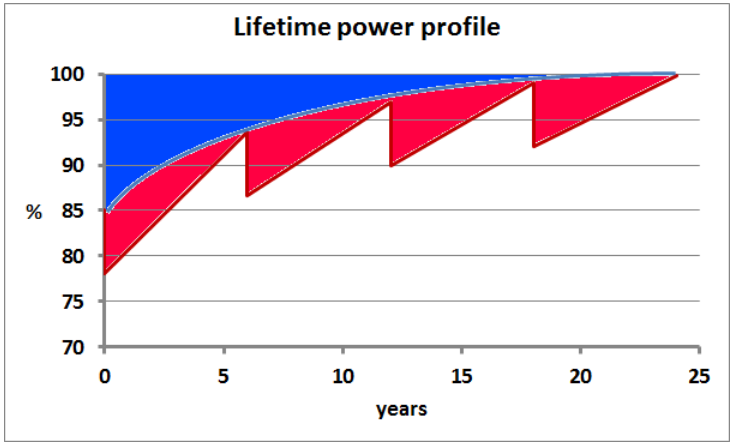
cars off the UK's roads.

Savings enabled by trimming



Savings from dimming and constant light schemes





The light output required from an LED changes

- at different points in the night
- over the year

The light output from an LED changes

- over its life
- as it is cleaned

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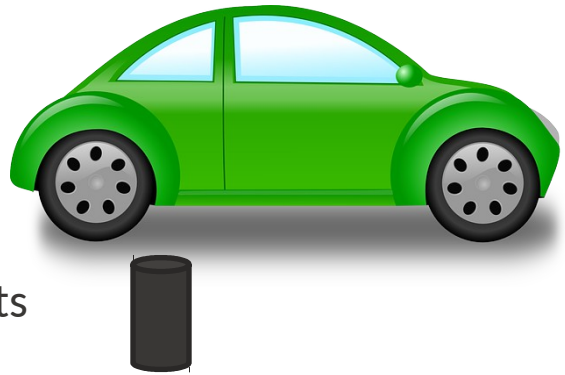
Smart parking

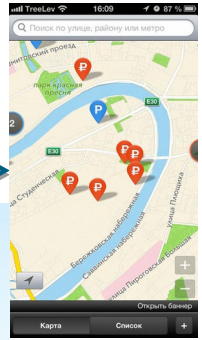
3. Message forwarded to Central System

Central System

2. Sensor sends message to base-station



4. Information for signs and consumer mobile app



1. Magnetic sensor buried in road detects car

Moscow's parking system

- 70,000 on-street parking spaces to be monitored – the largest system in the world
- 800 signs showing free spaces
- Congestion reduced by 27%
- Average traffic speeds increased

With a “free” network couldn’t you do other things?

- Industrial applications
  - Postal tracking
  - Transportation asset tracking
  - Supermarkets and local authorities
- Consumer applications
  - Child and pet tracking
  - Brand engagement
- Imagine a fitbit that is given away for free
  - And it’s better than that – it’s connected

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Thank You

jon.lewis@telensa.com